WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule for controlling floral development in orchid, which nucleic acid molecule is selected form the group consisting of:

(a) a nucleic acid molecule, *PeMADS2,* comprising the nucleotide sequence of SEQ ID NO: 1 and the anti-sense strand thereof;

(b) a nucleic acid molecule, *PeMADS3,* comprising the nucleotide sequence of SEQ ID NO: 3 and the anti-sense strand thereof;

(c) a nucleic acid molecule, *PeMADS4,* comprising the nucleotide sequence of SEQ ID NO: 5 and the anti-sense strand thereof;

(d) a nucleic acid molecule, *PeMADS5,* comprising the nucleotide sequence of SEQ ID NO: 7 and the anti-sense strand thereof;

(e) one or more nucleic acid molecules hybridizing with the complement strand of any one of the nucleic acid molecules as defined in (a), (b), (c) and (d) under stringent hybridization conditions; and

(f) one or more nucleic acid molecules comprising the degeneration sequences of any one of the nucleotide sequences of SEQ ID NO: 1, 3, 5, and 7.

2. The nucleic acid molecule according to Claim 1, which is capable of controlling floral development in *Phalaenopsis spp.*.

3. The nucleic acid molecule according to Claim 1, wherein the nucleic acid molecule *PeMADS2* is capable of controlling sepal development.

4. The nucleic acid molecule according to Claim 1, wherein the nucleic acid molecule *PeMADS3* is capable of controlling lip development.

5. The nucleic acid molecule according to Claim 1, wherein the nucleic acid molecule *PeMADS4* is capable of controlling lip and column developments.

6. The nucleic acid molecule according to Claim 1, wherein the nucleic acid molecule *PeMADS5* is capable of controlling petal and stamen developments.

7. A vector comprising the nucleic acid molecule according to Claim 1.

8. The vector according to Claim 7, which is a shuttle vector that is capable of expressing the nucleic acid molecule according to Claim 1 in a plant.

9. The vector according to Claim 7 comprising an inducible promoter.

10. A kit for controlling floral development in orchid, which comprises the vector according to Claim 7.

11. A cell transformed with the vector according to Claim 7.

12. A transgenic orchid comprising the nucleic acid molecule according to Claim 1 in the cells.

13. A transgenic orchid according to Claim 12, which is transformed with the vector according to Claim 7.

14. The cell according to Claim 11, wherein the cell is a prokaryote cell.

15. The cell according to Claim 11, wherein the cell is an orchid cell.

16. The cell according to Claim 11, wherein the cell is a *Phalaenopsis spp.* cell.

17. A method for producing a transformed orchid cell comprising introducing the nucleic acid molecule according to Claim 1 into an orchid cell to obtain the orchid transformed cell.

18. The method according to Claim 17, wherein the orchid is a *Phalaenopsis spp.*

19. The method according to Claim 17, wherein the orchid cell is derived from a protocorn-like body.

20. The method according to Claim 17, wherein introducing the nucleic acid molecule into the orchid cell is by a gene gun.

21. A protocorn-like body comprising the nucleic acid molecule according to Claim 1.

22. A method for producing a transgenic orchid comprising the steps of:

(a) introducing the nucleic acid molecule according to Claim 1 into an orchid cell to obtain an orchid transformed cell; and

(b) regenerating the orchid transformed cell to obtain the transgenic orchid plant.

23. The method according to Claim 22, wherein the orchid plant is a *Phalaenopsis spp.*

24. The method according to Claim 22, wherein the orchid cell is derived from a protocorn-like body.

25. The method according to Claim 22, wherein the nucleic acid molecule is introduced into the orchid cell in step (a) by a gene gun.

26. A transgenic orchid produced according to the method according to Claim 21.

27. A protein encoded by the nucleic acid molecule according to Claim 1.

28. A protein for controlling floral development in orchid, which is selected from the group consisting of PeMADS2 having a sequence of SEQ ID NO:2, PeMADS3 having a sequence of SEQ ID NO:4, PeMADS4 having a sequence of SEQ ID NO:6, and PeMADS5 having a sequence of SEQ ID NO:8.

29. The protein according to Claim 27, which is used for controlling floral development in *Phalaenopsis spp.*

30. A method for controlling floral development in orchid, which comprises changing the amount of the protein according to Claim 27 in a plant.

31. The method according to Claim 30, wherein the amount of the protein according to Claim 27 is changed by inducing, inhibiting and deleting the expression of the nucleic acid molecule according to Claim 1.

32. The method according to Claim 30, wherein the amount of the protein was changed by increasing or decreasing the ploid of the nucleic acid molecule of Claim 1 in at least one cell of the plant.

33. The method according to Claim 30, which the amount of the protein was changed by using a gene gun to introduce the nucleic acid molecule of Claim 1 into the cell.

34. The method according to Claim 33, wherein the cell is derived from a protocorn-like body.

35. The method according to Claim 30, wherein the amount of the protein comprises was changed by introducing an anti-sense strand of the nucleic acid molecule into the cell.